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**AIR DISASTER RESPONSE PLANNING:
LESSONS FOR THE FUTURE**

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ABSTRACT

This monograph presents recommendations for disaster response planning from rescue workers and survivors of the Kansas City Hyatt Regency disaster of July, 1981. Several of these recommendations are interpreted for use in air-disaster-response planning. The importance of planning a communication network, crisis intervention and the employment of helicopters are discussed to enhance the quality of large-scale disaster rescue response.

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PREFACE

The response needed to any disaster is often similar, if not alike, to that of others. On July 17, 1981 two 65,000 pound skywalks collapsed during the weekly tea dance at the Kansas City Hyatt Regency. Although the rescue was praised throughout the country, several key rescue workers and survivors have proposed recommendations for disaster rescue planning. These recommendations have been expanded to assist in air-disaster-response planning.

Airport authorities responsible for air-disaster-response planning must include all emergency services likely to be called in during the planning process. The participation of the emergency services and allied professionals will establish communication channels prior to any air disaster and familiarize them with the actual plan.

When these authorities are developing the air-disaster-response plan, three factors should be considered: a communication network to maintain control, crisis intervention for the hysterical and the employment of helicopters to help ground personnel.

This monograph is designed for members of the emergency management community, fire professionals, allied professionals and airport professionals having air disaster rescue planning responsibilities. It is proposed that these groups meet to develop an air-disaster-response plan for major airports so that smaller airports would follow their lead.

AIR DISASTER RESPONSE PLANNING: LESSONS FOR THE FUTURE

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INTRODUCTION

A Pan American Airlines 707 departed San Francisco on June 28, 1965, bound for the Orient which -- after having flown over the ocean for approximately 10 minutes -- lost the tip of its wing. Then, moments later, a much larger segment of the wing fell off, including one of the engines. At this point, the captain turned on the intercom and said, "Ladies and gentlemen, we have a slight problem. Well, on second thought, perhaps it's not so slight." Similarly, no matter how it is considered -- from whatever angle -- disaster response planning is a complex, complicated, difficult problem. In disaster response planning, it is well to keep in mind Murphy's Law -- that if anything bad can happen, it will happen at the worst possible moment. To make the situation even worse, all we have to do is remember O'Brien's Corollary: Murphy was an optimist! Once a disaster has occurred -- whether it be an airplane crash or a building collapse -- the response needed in the vast majority of instances will be very similar, if not the same. This is the basic theme of this monograph.

Specifically, this monograph analyzes the effectiveness and efficiency of community and extra-community response(s) to the Kansas City Hyatt Regency Disaster; documents recommendations of rescue workers on-the-scene of the disaster and survivors; relates these recommendations to air-disaster-response planning; and, proposes a strategy for use by airport executives that encourages the participation of airport financial executives, personnel of local emergency service agencies, and federal regulatory/licensing agencies in the development of integrated air-disaster-response plans.

MURPHY'S LAW: A CLASSIC EXAMPLE

Located in the city's Crown Center, a fashionable commercial district south of downtown, the Kansas City Hyatt Regency Hotel was known for the beauty of its interior architecture. A four-story lobby was connected to the main tower by three suspended walkways, known as "skywalks" or "skybridges." Since its July 1980 opening, the \$50 million, 40-story, 733-room hotel, had attracted thousands of guests. In addition, every Friday evening many local residents were attracted to the Hyatt Regency for "tea dances" from 5:00 until 8:00 p.m. that featured big bands, a dance contest, and an always festive atmosphere.

The Kansas City Hyatt Regency disaster on July 17, 1981, was a classic example of Murphy's Law! Had the skywalks collapsed at 2:00 a.m. on a Tuesday night no doubt several bellboys would have been killed and that would have

been tragic. However, such an event would have been a small tragedy compared to the skywalks collapsing on a Friday evening with 1,400 people standing below elbow-to-elbow jamming the lobby. What made it the worst possible moment was the dance contest had just started, which for most people meant they left the dancefloor to stand under the skywalks. Some people saved their lives by accepting, no matter how reluctantly, an invitation to enter the dance contest. Others lost their lives by refusing.

At 7:08 p.m., two of the three 120 foot long skywalks weighing 65,000 pounds, collapsed and fell to the floor, trapping hundreds of people. The disaster, the worst in Kansas City's history, resulted in 114 deaths and caused injuries to more than 250 other persons. Approximately 100 of the injuries were considered critical.

Involved in the rescue were 14 fire trucks, 8 fire chiefs, 2 cranes, 14 Hurst tools, 2 high loaders, 3 forklifts, 2 helicopters (14 on standby), 200 firemen, 30 doctors, 40 nurses, 80 emergency medical service personnel from Kansas City proper, 60 emergency medical service personnel from the Kansas City area, and 37 ambulances.

The first call to the Kansas City ambulance-dispatch center was received at 7:08 p.m. and 10 seconds from an executive at the Hyatt Regency who said excitedly, "Part of the ceiling has fallen into the lobby of the Hyatt Regency. Please send ambulances." The dispatcher taking the call asked, "How many people are injured?" The executive responded, "I don't know." The dispatcher asked, "Is it 10, 20, 30?" The executive answered, "There must be at least 100." The supervisor on the first ambulance to arrive on the scene was Allen Askren who subsequently reported:

"We had several incidents in prior weeks initially described as disasters that turned out to be comparatively minor. But this time I knew it was serious -- because this time when the dispatcher called, she was crying."

The first emergency medical services (EMS) personnel to arrive on the scene were pulled in all directions by people who wanted them to give immediate attention to injured friends, relatives, and loved ones. More serious problems encountered at the scene were those created by the almost inevitable confusion of all community-based emergency services personnel responding to the same place, at the same time. For example, police cars were blocking fire trucks; fire trucks were blocking ambulances and vice versa; emergency service personnel with no responsibility to become involved in the firemen's rescue effort became involved. Ambulance drivers would leave their vehicles to help someone, but then when the ambulance was loaded the driver could not be found. Another major difficulty resulted from the different interiors of the ambulances and/or from the different way equipment, supplies, and drugs were stored. In many instances, EMS personnel had great difficulty finding what they were looking for. Finally, the ambulances were stripped, and all equipment, supplies, and drugs were stockpiled at the disaster site and dispensed as needed. Though police secured the

immediate area surrounding the Hyatt, once ambulances got beyond the immediate area the routes to and from the hospitals were not always clear. At the hotel, when the skywalks collapsed, water pipes broke and spilled into the lobby. Hence, the early part of the rescue was conducted in ankle-deep water red with blood.

Perhaps the most immediate need at the disaster site was for a portable public address system that would have allowed rescue workers to communicate without running here and there. It was well into the night before bullhorns became available, and, when they did, some fell into the hands of unauthorized personnel which did not help matters. Deputy Chief Arnett Williams, who was in charge of the firemen's rescue effort and a former crane operator himself, said:

"When I walked into the lobby and saw what we had to deal with, the first thought that came to my mind was cranes."

Cranes that would ordinarily take a day to be transported from one site to another were there in an hour. However, before the rubble and wreckage trapping the injured could be moved, each step requiring the use of the cranes had to be calculated lest a bad situation be made worse and more people be killed than saved. In this operation, the work of volunteer ironworkers was invaluable.

When a lot more people were being found dead than alive, one of the survivors upon being freed from deep rubble, immediately looked at his watch and said, "My Timex is still running." This bit of humor under such circumstances made the rescue workers laugh -- the best medicine in the world -- and provided them with a new lease on life. However, it should be noted that the psychological trauma experienced by survivors and rescue workers alike still haunted many of them as much as a year later. In fact, one of the rescue workers said, "It seems that with the passage of time the flashbacks become worse rather than better."

Throughout the night the assignment of patients to hospitals was coordinated by an emergency radio network that allowed its director, Ronald Norman, to talk to the hospitals simultaneously or individually. The last survivor to be found alive, Mark Williams, was not discovered until dawn. He was trapped in total darkness for 10 hours with two crushed legs and a broken back. It was 9:00 a.m. before all of the rescue workers went home. Many of them had been on the scene from 10 to 14 hours. Today all of them remember how the disaster site smelled. Yet few, if any, have any recollection of time. As one paramedic stated:

"Looking back, everything seems to have happened so fast. But that night was like an eternity. It took months to get from one hour to the next. I thought the night would never end."

Following the disaster, the rescue was lauded in all corners of the country. The official evaluation of the United States Fire Administration (USFA) of the Federal Emergency Management Agency described it as "a textbook operation." As a direct result of the quality of the rescue operations undertaken at the scene of the Kansas City Hyatt Regency Hotel disaster, a national conference was held at Saint Louis University. The purpose of the conference was to provide a forum for key rescue personnel on-the-scene of the Hyatt Regency Disaster to share their experiences with other emergency services professionals throughout the nation who would have to assume the same or similar responsibilities were a major disaster to occur within their respective jurisdictions.

At the conference, as a result of their work in dealing with the Hyatt Regency disaster, 16 of the key rescue workers and 3 survivors made the following recommendations:

1. **PREPLANNING**

Since a disaster is any event that seriously depletes or exhausts the emergency response capability of a community, in every community a pre-plan should evolve. It is critical and essential that local communities have an organized response to disaster. This response should result from a coordinated planning effort of all anticipated responders to a potential disaster situation. Anticipated problems such as supplies, communications, control, staging, and transportation must be resolved. In addition, mutual aid, welfare of rescuers and victims, evacuation, and alarm must be included in every plan.

2. **COMMUNITY PLANNING COMMITTEES**

A disaster committee of potential public and private emergency responders should be established. On a regular basis, public and private emergency responders should be brought together to develop the community's planning effort. As conditions change, the plans need to be continuously updated and revised. Thus, to meet the needs of all participants, this group must meet regularly to provide a forum for problem-solving and ongoing coordination.

3. **DISASTER-MANAGEMENT TRAINING**

Disaster management and administration training should be provided in advance. Effective administration and efficient manpower output are dependent on predefined tasks and roles that both supervisory

and field personnel must rigorously adhere to. Training is needed to familiarize personnel with these tasks and roles.

4. INTEGRATED EMERGENCY MANAGEMENT EXERCISES

Training in mass casualty situations should be provided in advance. The most effective way for institutions and organizations to prepare for a multi-casualty incident is to have frequent and realistic exercises that enable personnel to respond not only to a particular type of emergency but to a broad range of incidents. Such exercises provide an opportunity for the personnel of individual agencies to prepare for dealing with various incidents and, also, for interfacing with other agencies.

5. IDENTIFICATION OF KEY PERSONNEL AND EQUIPMENT

A cadre of specialized equipment and personnel that might conceivably be needed in a rescue effort should be established and catalogued. Additionally, the names, addresses, and phone numbers (both office and home) of other potential-human resources should also be identified. Such pre-planning will minimize the time required to obtain what is needed at the disaster site. The responsibility for securing the requisite equipment and manpower should be assigned to one or two individuals.

6. AMBULANCE INTERIOR DESIGN

Ambulance should either have the same interior design or a common plan for storing drugs and equipment in ambulances should be developed. Such pre-planning by emergency medical services agencies/personnel will greatly expedite locating what is needed, when it is needed, at the disaster site.

COMMUNITY MENTAL HEALTH SERVICES

7. Crisis intervention should be provided. Individuals involved in a disaster may require the services of mental health professionals. Crisis intervention may be needed during both the disaster and in the post-disaster period. Such services should be made available to survivors, the bereaved, and rescue personnel as needed. Hence, crisis intervention should be included as a component of a community's disaster plan. Furthermore, the plan should identify the mental health resources available in the community.

8. PUBLIC INFORMATION OFFICER

A Public Information Officer (PIO) should be designated. Preferably this officer will possess the requisite background and personal experience in professional emergency service. The designation of a Public Information Officer will enable the centralization of all communications with the media by establishing a focal point for the release of information. It is imperative that the PIO provide accurate and timely information. This position should be established prior to an incident to facilitate an ongoing point-of-contact with all agencies responding to the incident. The formalization of a primary contact person can greatly enhance the credibility of information exchanged between responding agencies and the media.

At the disaster site, the PIO should establish a press site outside of the disaster area to minimize interference with emergency operations and to reduce the possibility of media members becoming victims.

9. COORDINATED COMMUNICATIONS NETWORK

A coordinated communications network needs to be established. The establishment of a coordinated communications network provides the ability to interface with other emergency services personnel and agencies both on the scene and at the communications center.

10. PORTABLE PUBLIC ADDRESS CENTER

A portable public address system should be available. The noise from both responding emergency units and various types of equipment may create difficulty in effectively communicating important information at the disaster scene. A portable public address system enables officials to direct activities despite the chaos normally associated with major incidents.

11. IDENTIFICATION OF KEY OPERATIONAL PERSONNEL

Key personnel should be identified. At any disaster, numerous emergency response agencies are at the scene. An easily recognizable standard for identifying key personnel with operational

responsibilities, such as police and fire commanders, medical triage officers, and medical directors, should be devised. Such personnel could be more easily identified by using vests, arm badges, or hats. Other non-uniformed responders such as physicians and nurses may be identified by using name badges.

12. MEDICAL DISASTER RESPONSE PRE-PLANNING

Hospital administrators, department heads, nursing and medical staff must be involved in pre-planning in-hospital disaster response. All relevant hospital personnel should be involved in planning both the medical facility's in-hospital and extra-hospital disaster response. The plans must identify medical supplies, manpower resources, and other medical/technical assistance as needed.

13. INTEGRATED DISASTER RESPONSE TRAINING FOR MEDICAL PERSONNEL

Pre-hospital and hospital providers must establish close working relationships and receive special training in disaster response. To insure efficient and coordinated operations, pre-hospital and hospital providers must develop consistent triage formats and non-redundant emergency procedures. This can only be accomplished by the establishment of a cooperative relationship between pre-hospital and hospital providers. Here especially, on all levels, training should be provided for responding to mass casualty incidents.

14. RESPECT FOR THE DECEASED

Emergency responders must maintain respect for the dead. The dignity of death must be preserved in every instance. Rescuers must never lose sight of the fact that each body is that of a person.

15. ENFORCEMENT OF BUILDING CODES

Building codes should be strict and rigorously enforced. Rigid and enforced building codes can minimize a community's chances of having a disaster by reducing the likelihood of their occurrence.

16. NATIONAL CONFERENCES

National conferences should be conducted regularly to provide emergency service personnel with the opportunity to learn from every major disaster. The nation, it would seem, owes this to itself (Grollmes et al. 1982).

AIR DISASTER RESPONSE PLANNING

As previously noted, the Kansas City Hyatt Regency Disaster was a classic example of Murphy's Law. The "Lessons Learned" as documented in the previous section by on-the-scene rescue workers and survivors provide invaluable information to disaster preparedness planners at the federal, State and local level(s).

In short, Murphy was an optimist. Review of the literature suggests that once a disaster has occurred (regardless of magnitude) -- whether it be an airplane crash, such as the aircraft disaster in the District of Columbia (1982) or the aircraft collision in San Diego, California (1978); and/or a building collapse similar to that which occurred in Cocoa Beach, California (1981) -- the response required in the vast majority of cases will be similar, if not the same.

The discussion that follows provides a striking example of how "lessons learned" and "shared" by rescue workers and survivors at the Hyatt Regency Disaster can be utilized to enhance the effectiveness of future air disaster response planning.

- Cooperative pre-planning involving all emergency service agencies likely to be called must occur at every airport.
- The resultant disaster-response plan should reflect the best thought and experience of all persons involved in the planning process and should be meaningful to all parties.
- During the planning process, the directors and/or key officials of various emergency services agencies should be encouraged to enhance not only their knowledge of their respective functional responsibilities during a disaster but at their knowledge of the person/persons with whom they will/must interact should a disaster occur. This personal knowledge coupled with the establishment of formal/informal acquaintances can be very important -- relative to minimizing problems associated with role conflict(s) at the disaster site.
- Airport finance directors should be included during the planning process. The benefits to be derived are twofold: first, such personnel will prove invaluable in sharing their expertise relative to the cost-effectiveness of a particular planning strategy/approach; and, second, such personnel will be provided with firsthand knowledge of the

reasoning and necessity behind the plan. A major topic of discussion should be that an airport not prepared for a disaster exposes itself to serious legal suits.

- All participating agencies must be aware of the other's needs and limitations and thus plan accordingly. There should also be a cooperative effort in identifying further resources and means of mutual support.
- The final version of any disaster-response plan must be stated clearly to insure that all key and ancillary respondents (e.g. volunteer organizations and newly emergent groups) and/or existing emergency services providers understand what their respective roles/responsibilities are when disaster strikes. No plan will be effective if those who are expected to follow it either are unknowledgable about the plan or their role(s) in implementing the plan.
- The disaster response plan should be carefully pursued and it's existence made known -- not only to administrators having decisional authority but to everyone involved in the emergency response network --including, but not necessarily limited to -- the lowest-ranked personnel of every emergency services agency that is either perceived or anticipated to respond to the emergency. Furthermore, as a minimum, all personnel -- from the highest to the lowest echelon(s) -- should be required to review and to demonstrate his/her knowledge of the formal disaster plan at least once a year.
- Rescue workers should be instructed to envision their responsibilities in relation to others during their study/familiarization of the disaster response plan. Additionally, such workers should presume that key decision-making officials may/maynot be accessible/present during the first day of the disaster.
- In the absence of pre-planning and practice (e.g. exercising), effective response(s) to a major disaster is impossible. No matter how carefully a disaster response plan has been developed/practiced, or how well anticipated variables have been identified, the scene of a disaster will invariably be hectic -- if not frantic, depending upon the situational environment.
- In practicing the disaster plan, every key emergency management/service agency needs to engage in an annual assessment of whether the disaster drills conducted during the previous year were either reflective of the expected goals of the disaster-response plan or simply an exercise designed to meet a bureaucratic requirement. Additionally, key considerations to be revisited are whether the plan's principal motivation is to save lives, whether serious problems uncovered in the plan lead to making changes to the plan and implementing the new plan, whether additional training is given to familiarize key and ancillary users of the plan; and, whether new equipment required to implement the plan is acquired.

- Given the Pan American Airlines disaster in Kenner, Louisiana, and the Air Florida crash in Washington, D.C., it is obvious that air disasters can occur in bad as well as good weather. Actually, there is an increased likelihood that they will occur in bad weather. Hence, it would be well if, at least occasionally, disaster-response drills were conducted in severe weather conditions. To avoid such practice means that the disaster-response plan in question is in many ways remains untested.
- As documented by the National Transportation Safety Board, the occurrences of two major accidents within a 30 minute period in the Washington Metropolitan area during a heavy snowstorm on January 13, 1982, placed a severe burden on the emergency response capability of those jurisdictions required to respond to both accidents. While unique, the concurrent emergencies emphasized the need for the District of Columbia Fire Department -- as well as all other emergency service organizations -- to review existing emergency response plans to assure that a residual rescue response capability is available at all times.

COMMUNICATION PROBLEMS

Obviously, one of the major problems at the site of every large scale disaster is communication. This problem, alluded to earlier, will be greatly alleviated if the following suggested guidelines are adopted:

- A central command post must be established immediately. The purpose of the central command post is to organize and integrate individuals and local community agencies as they arrive on-the-scene.
- All rescue workers must be provided with appropriate identification.
- A coordinated, interfacing, communications network should be available to all responding emergency service units. Communication benefits will also be enhanced by the presence of a command vehicle on-the-scene that is capable of coordinating and monitoring the use of the network.
- A portable public address system should be available to on-the-scene rescue workers.
- If the activated disaster-response plan eliminates overlapping responsibilities, needless repetition of action, and authority disputes, communications will be greatly enhanced.

- There is also definite need to clarify and discuss -- in advance -- the responsibility and role of the media at a disaster site and what the consequences may be of failing to adhere to established standards. In developing these standards, in-depth discussions between emergency service personnel and news directors would be mutually very helpful.

COMMUNITY MENTAL HEALTH PROBLEMS

As was emphasized above, every disaster-response plan should include provisions for mental health. Such assistance should be available both during and after a disaster. It should be available at the disaster site not only for survivors, but also for rescue workers. Furthermore, professional psychiatric help should be present on the scene for the hysterically and deeply bereaved.

The following summarizes key observations and recommendations of rescue workers and survivors relative to the psychological consequences suffered as a result of prolonged exposure to widespread death and trauma during the Hyatt Regency disaster.

- "At first you don't realize how many people are killed," says Chief D. J. Mumhrey of the Kenner, Louisiana, Fire Department. "You don't see that when the plane crashes -- you see it after the crash. You see it sporadically, as you go through the debris and realize you are walking on people -- mutilated people."
- As Billie Miller, a Red Cross disaster field representative noted at the Hyatt Regency Disaster Conference last year, "At a major disaster, every rescue worker becomes a victim."
- No human being can be exposed to such widespread evil, death, and trauma without experiencing psychological consequences. These consequences may take various forms -- not least among which are recurring flashbacks, abnormal fatigue, dreams of the event, isolation and detachment, a tendency not to feel deeply about things anymore, lack of interest, inability to sleep, difficulties in remembering and concentrating, anxiety and depression, loss of sexual desire, loss of appetite, avoidance of circumstances that might involve recalling the disaster, persistent feelings of guilt and anger.
- Group therapy programs -- crisis intervention -- in the post disaster period can be and have been very effective. Also, many of those suffering from psychological consequences after a disaster have found help and relief in a deepening religious faith.
- It might be also worth noting that a study of the psychological consequences suffered as a result of the Hyatt Regency disaster revealed they were very much the same -- in nature and degree -for both male and female.

- In view of the inevitability of psychological trauma, an ounce of prevention may again be worth a pound of cure. Imparting information during training to rescue workers on what to expect at a major disaster can equip them to deal more readily with the early feelings of victims as well as with their own feelings.

AIR RESCUE DISASTER RESPONSE PLANNING

Another major important point is one that is sadly and too often neglected. There is great and widespread need to integrate and utilize the employment of helicopters in disaster-response plans.

The discussion that follows summarizes observations and recommendations of survivors and rescue workers on-the-scene of the Kansas City Hyatt Regency disaster and proposes a strategy for use by airport executives in developing an air-disaster-response plan.

- A determined effort needs to be made to identify and incorporate the use of military, public service, and commercial agencies with air rescue capabilities into every disaster-response plan.
- This incorporation of air rescue agencies must include assignments for: (1) search and rescue; (2) transportation of medical teams; (3) transfer of injured; and, (4) carrying of supplies.
- Don Usher, the intrepid pilot of the U.S. Park Police helicopter who performed so nobly in the rescue of the survivors of the Air Florida crash, reports that the request for helicopters came from the tower at National Airport. Fire and other rescue agencies never did request such help. The use of helicopters was not included in the official disaster response plan.
- At the Air Florida disaster, even though the U.S. Park Police helicopter had the capability of communicating with the ground, it was not able to do so because the radio frequency was too cluttered with emergency -- and non-emergency -- messages.
- Though Dallas-Fort Worth and Houston have both integrated air evacuation into their disaster response plans, in most cities -even if helicopters were called in -- there would be no radio frequency available whereby rescuers on the ground could communicate with those aboard the helicopters. Hence, almost everywhere an emergency operational channel needs to be established to enable two-way communication between ground and air.

- Especially in circumstances where hospital routes are not cleared, inaccessible, or impassable, helicopters can and should provide a quick and efficient solution.

It would seem appropriate to recommend that, given the prominent position held by airports in modern urban society, airport executives might well serve as catalysts in uniting local emergency service agencies in a concerted effort to develop an air-disaster-response plan. Such a plan might well be applicable to any other disaster -- natural or manmade. Secondly, many finance directors in airport administration need to be convinced and brought to an increasing awareness of the importance of air-disaster-response planning. Until this is accomplished, those responsible for such planning will in many instances continue to be frustrated, the implementation of plans will be postponed, and the purchase of necessary equipment will be much too long delayed. Hence, the Association of American Airport Executives (AAAE) should organize a campaign aimed at bringing airport finance directors to a more complete understanding and deeper appreciation of air-disaster-response planning. Third, AAAE, the Federal Aviation Administration, and the National Transportation Safety Board should cooperate in sponsoring a national conference for airport executives and the fire chiefs of the 100 largest U.S. cities to develop an air-disaster-response plan that would reflect the best thinking of airport executives and emergency service personnel, be meaningful to both groups, and serve as a guideline and checklist for every major airport in the country. The program and procedures for such a conference have already been given much time and reflection.

CONCLUSIONS

In conclusion, it is important to keep in mind the human dimension of every disaster. If the human dimension is lost sight of, a disaster quickly becomes simply a matter of statistics, maps, charts, and various calculations. Unfortunately, these are woefully inadequate in presenting a complete picture. Statistics do not live, bleed, or die. Human lives and human suffering are reduced to mere numbers. The tragedy of what has happened is quickly lessened. Its power to motivate is weakened. Hence, if those responsible are going to work as hard as they should to keep disasters from happening and be as ready to respond as they should be if and when a disaster occurs, it is imperative that the human dimension of these events be kept clearly in focus. There is no better way to emphasize the point than to quote briefly from the taped transcripts of the dialogue between Pacific Southwest Airline (PSA), Flight 182, and the tower at the San Diego Airport on September 25, 1978.

The tower early on instructed PSA of the Cessna in their area. PSA responded that the Cessna was in view and the situation was under control. After several more minutes of dialogue between the tower and PSA, the tower asked, "Have you by-passed that Cessna yet?" The Flight Engineer responded, "Yes, I

think he is behind us now." The Captain answered, "I hope so." Moments later there was impact under the right wing. The Captain said, "Whoops..." The First Officer said, "Oh." The Flight Engineer yelled, "We're hit. We're hit." There were cuss words. The Captain shouted, "It's bad. It's bad." There were more cuss words. There was a pause. The Flight Engineer shouted, "This is it, baby." The Captain advised, "Brace yourself." The First Officer said, "Mom, I love you."

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